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Skylab Report: "Remote Sensing Geophysics from Skylab" #487

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Status during October

1. Images from one of our test sites along the Skylab ground track near Tonopah, Nevada, have been used to obtain fine scale, digitized, surface profiles. These will be spectrally analysed and the results employed in a theoretical scattering model predicting microwave emission and radar backscatter characteristics. These theoretical results will be compared to Skylab Radscat data as a test of the adequacy of the model. Having attained a dependable scattering model, the theory will be applied to several geologic terranes with the objective of determining the required radscat wavelengths, polarizations, and view angles to discriminate between terrane types.

2. We have begun preparing our computer program for analysis of Skylab data. We currently have on hand an S-194 tape, GMT day 154:19:23:32 which we will be using in our initial analysis of the microwave data. A new computer system is currently being installed by the U.S.G.S. at Denver (a DEC 1070 System) which will greatly increase our capability to handle the magnetic tape data from Skylab.

3. Work continued on development of the thermal infrared and the microwave scattering models. A paper on one aspect of the thermal model has just been published in the Journal of Geophysical Research (a reprint will be transmitted when available) and a paper describing the microwave model has been transmitted to Radio Science for publication.

4. As requested we have transmitted a followon investigation proposal for analysis of Skylab data. We also discussed with MSC personnel the types of thermal data acquisition from SL-4 which would be required for geothermal analysis and thermal inertia mapping.

Requirements

1. We have not yet received the S-192 magnetic tape requested previously.

2. No S-192 thermal data (either tape or film strip) has been received.